Automatic Chicken Coop

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SUMMARY

Growing up on a farm, there were many unpleasant tasks. Summers were filled with backbreaking labor, not to mention the daily chores of milking 80 or so cows and collecting the eggs and feeding the chickens.

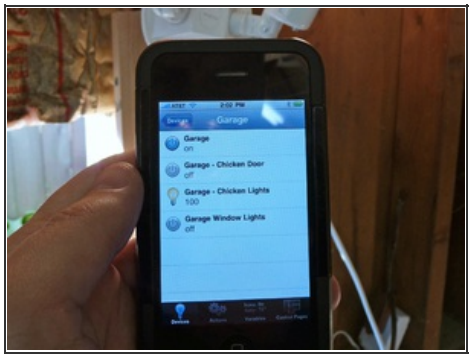
I now live in the city of Portland, Ore., and I've come to miss those farm days of 20 years ago. When I decided to get a couple of chickens, I was adamant that the work involved wouldn't seem like work. Gone are the days where I'd wake before dawn to get to the barn or prepare for a cold day chopping wood. These days it's all about waking with the sun.

One of the delightful aspects of chickens is that they're low-maintenance. As long as they can get out of the coop, grab a bite to eat, have access to fresh water, and retreat to a safe area at night, you basically have very little to do to keep them happy.

And seeing as I'm now a lazy, citified man, I wanted a solution that allowed for late mornings, weekend getaways, peace of mind, and avoiding any possible exposure to the elements, either to let the fowl out or collect the eggs. So with a few ideas garnered from around the web, and a few of my own, I cobbled together a henhouse that accomplishes a number of tasks without a single finger lifted, yet provides me with the knowledge that my lovely birds are always out at daybreak, but in at curfew.

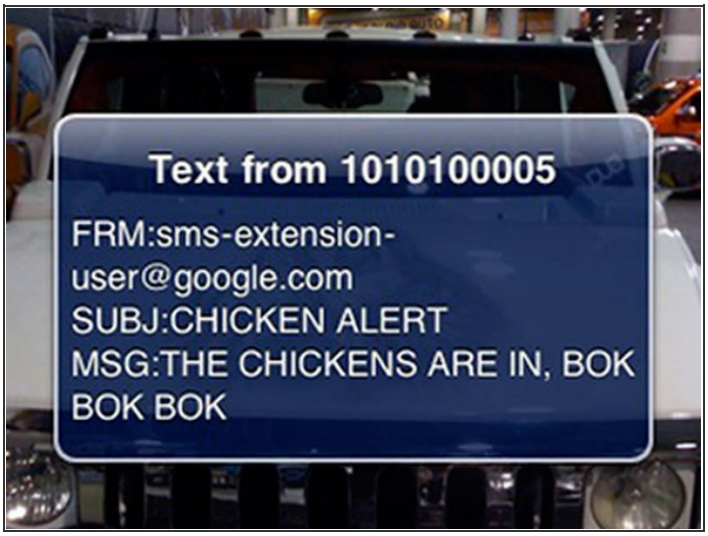
I created an automated henhouse in my garage with an infrared motion detector, automatic lights, heater, and automated door. I know when they get out in the morning and I know when they come back in at night. Here's how I put it all together.

Step 1 — How my henhouse works.



- My system runs off a Mac Mini with home automation software, but what I'll describe here is a system you can build without a computer, using components from the online retailer http://smarthome.com.
- My coop kicks on supplemental lights 2 hours before sunrise to increase egg laying in winter months
- At 45 minutes after sunrise, the automated door rises (and I receive a verification email/text), allowing the girls to venture out into the yard for a little free-range foraging. To go in or out of the coop, the 2 chickens must cross a motion detector, which sends me a notification that they've left (another email/text).
- By counting the notifications, I also know when they're done laying their eggs in the morning. Then the supplemental lights and a waterproof heating pad both turn off. The door remains open throughout the day and the girls will sometimes wander back to grab a bite.

Step 2



- At sunset the supplemental light turns on in their coop, summoning them to return for the night. At this time the heating pad also turns on, giving them a little extra heat on cold winter nights. When the girls wander into their coop, an infrared motion detector registers their entrance and sends me an email/text notification so that I know, no matter where I might be, that the girls are safely in the building. Since they always wander in one after another, I get 2 notifications, one for each bird.
- At 35 minutes after sunset, the chicken door closes and sends me a final confirmation via email/text that this has occurred. One hour later, the supplemental lights go off, and the girls are ready for their evening rest.
- In the next section I'll describe a simpler system.

Step 3 — Automate a simple motion detector and lamp to count your chickens.

- Imagine that you're sitting in the warmth and comfort of your home. You want to lock your gals up for the night, but you aren't sure when they'll finally wander in. Put a motion detector in the coop and link it to a table lamp in your house. When the hens arrive in their home, a lamp turns on in yours.
- Smarthome's Wireless Insteon Motion Sensor (part #2420M, $35) is the most affordable way to detect hen arrival. However, the trick with this type of motion detector is that, since it covers a wide area (40' by 110° arc), you don't want it to constantly pick up motion from moving chickens and turn your light on and off all the time.
- Instead, you want to limit it to sensing when the chicken crosses the threshold of the coop. I accomplished this by embedding the motion detector in a deep oatmeal can and pointing it across the threshold to create a focused beam in one precise location.
- With the motion detector in place, the next thing you'll require is some type of notification. You might use Smarthome's LampLinc Dimmer Module (part #2457D2, $50). It works as both a lamp controller and an RF receiver that can be linked directly to the motion detector.

Step 4

- After plugging a lamp into the LampLinc, you link the motion detector and LampLinc devices together by simply pressing a button on the back of the motion detector for a few seconds and then pressing a button on the LampLinc.
- Once the two are linked, the detector will send an RF signal up to 150' to the LampLinc device whenever motion is detected. When the LampLinc receives the ON signal, it will turn the lamp on.
- Now, the motion detector can and will send an OFF signal if it doesn't detect motion within 60 seconds. We don't actually want the LampLinc to turn off unless we manually turn it off.
- To prevent this, simply unscrew the back panel of the motion detector, place the included jumper on both #4 jumper pins, and tap the Set button once. Now the motion detector will send only the ON command.

Step 5 — But wait, there's more.

- If you’re willing to spend the money, there are a number of ways you can further automate your henhouse. Let’s say when the hens come home at night and cross the motion detector, you want to trigger a heater or heating pad.
- Add a TimerLinc (part #2456S3T, $46) and an Insteon Appliance On/Off Module (part #2856S3B, $30). When the hens come home the Appliance Module can turn on a small warming pad or other device, and then the TimerLinc can be set to turn off the device in the morning.
- Combine them with the Motorized Drape Controller (part #3142, $100), a sliding wooden door, some drape cord, and a counterweight, and you’ve got an automated chicken door that will open and close at specific times during the day, just like mine

Step 6

- Got predators? Combine the automated door with the Insteon Door Strike Kit (Figure K, part #51901, $138). Then set the TimerLinc to lock the henhouse door after it closes for the evening and unlock it in the morning before opening.

Step 7 — Control the coop via your iPhone.

- `do shell script “curl -v -d gl='US' -d hl='en' -d client='navclient-ffsms' -d c='1' -d mobile_user_id='15555555' -d carrier='ATT' -d ec='' -d subject='CHICKEN ALERT' -d text='THE CHICKENS ARE IN, BOK BOK BOK' -d send_button='Send' http://www.google.com/sendtophone”`
- This AppleScript command has an embedded shell script in it that calls out to Google’s free SMS service. I also get an email from Indigo, which has built-in support for SMTP email protocols. Indigo also has an iPhone app and can be controlled via a built-in web server.
- With a dynamic DNS service and port forwarding, you can access and control your coop from anywhere in the world. Add a webcam, and you can be not only a lazy chicken farmer, but a remote one as well.

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